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PRICE SPREADS, COSTS, AND PRODUCTIVITY IN POULTRY AND EGG MARKETING, 1955-74

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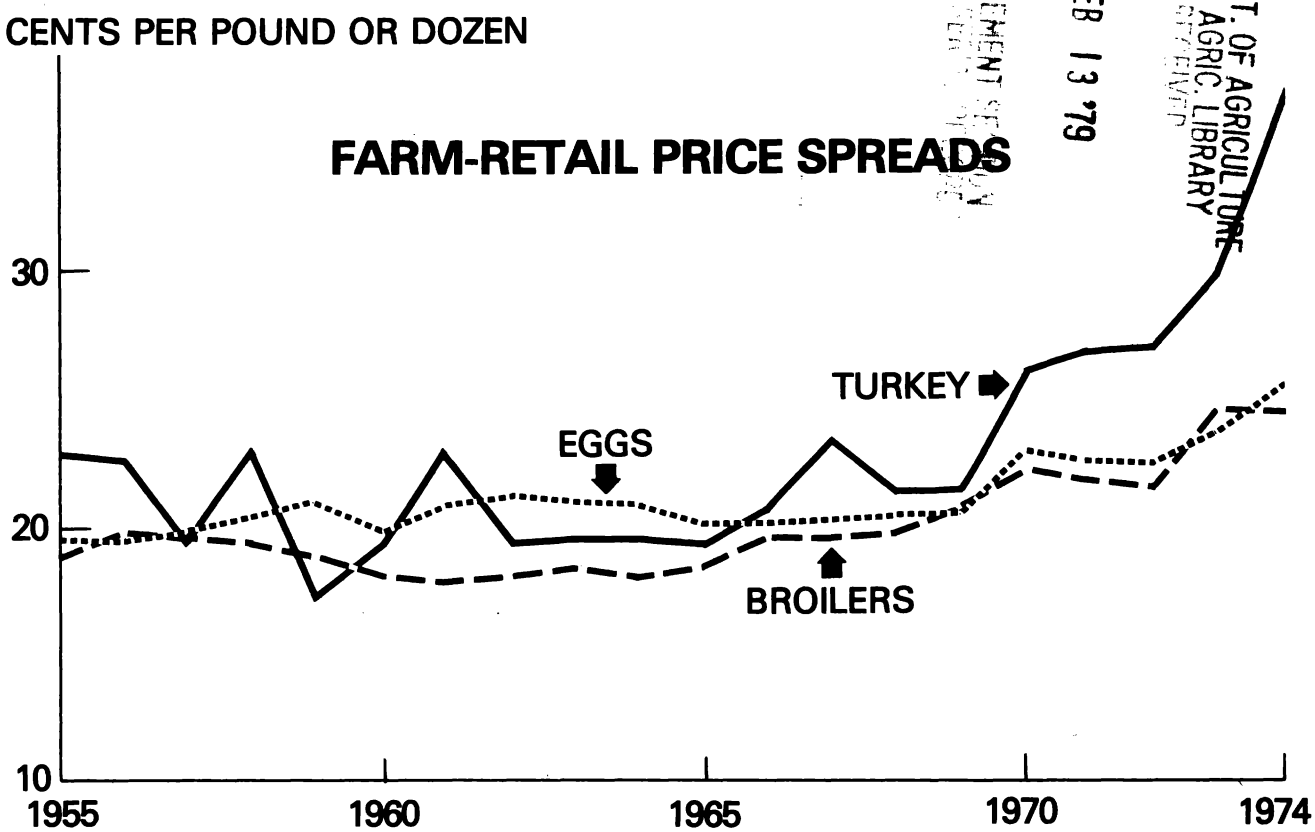

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PRICE SPREADS, COSTS, AND PRODUCTIVITY IN POULTRY AND EGG MARKETING, 1955-74. By George B. Rogers. Commodity Economics Division, Economic Research Service, U.S. Department of Agriculture. Agricultural Economic Report No. 326.

ABSTRACT

This study develops measures of costs, productivity, and returns in the marketing systems for eggs and poultry during 1955-74, using USDA's market basket price spreads series as a base. It also examines the changes in costs and productivity for individual marketing functions and the substitution between various inputs, based on a large number of previous studies.

KEY WORDS: Costs, eggs, marketing, poultry, price spreads, productivity.

Washington, D.C. 20250 February 1976

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SUMMARY

Price spreads for eggs, broilers, and turkeys remained relatively constant from the midfifties to the late sixties. This was largely due to efficiencies realized in performing various marketing functions. Since the late sixties, increased costs for labor, containers, energy, and overhead have been large enough to more than offset any productivity gains in marketing efficiency. As a result, unit costs for performing various marketing functions have risen.

The relative importance of individual components of poultry-marketing costs changed over the 1955-74 period. The costs of these components increased at differing rates. Efficiency of some components increased more than others, and some substitution among components occurred. Relative declines occurred in the proportion of total costs accounted for by containers and material costs, energy (until recently) and miscellaneous costs, and the share for labor increased for many functions. Productivity increases for various marketing functions during 1955-74 suggest that productivity rose for almost all poultry-marketing functions. Efficiency in the use of most inputs thus tended to rise, though rates of gain now are leveling off for some of them. There is some indication that average net returns from performing particular marketing functions have declined relative to other investment opportunities.

A substantial number of previous studies were examined in developing the measures in this report. These are listed as selected references.

PRICE SPREADS, COSTS, AND PRODUCTIVITY IN POULTRY AND EGG MARKETING, 1955-74

By

George B. Rogers
Commodity Economics Division
Economic Research Service

INTRODUCTION

During the late fifties and up to the midsixties, many Federal and State studies focused on costs and efficiency in poultry and egg marketing. Rapid changes were taking place in poultry production and marketing. Much new poultry raising and processing technology was being developed. Firms were realizing economies of scale through larger processing units, supply areas were being reduced in radius and increased in density, and marketing channels were becoming shorter and more direct. Studies thus extensively examined the likely impacts on industry structure and the cost-reducing opportunities available to individual firms.

From the midsixties through the early seventies, many of these trends continued. Relative costs of performing marketing functions continued to decline and further gains in efficiency occurred. Yet interest in cost-related research declined. Recently, however, with rapid inflation during the early seventies, the imposition and removal of price controls, the emergence of new regulatory-associated costs, and the arrival of the energy crisis, interest in cost measurement, monitoring, and research has been rekindled.

This report attempts to address these current concerns and to establish a continuing cost series for basic research and information purposes. The report: (1) concerns measurements of trends in price spreads and costs for specific marketing functions, (2) identifies the reasons for these changes, (3) examines the shifts in relative importance of cost items, and (4) estimates the changes in productivity of the poultry-marketing system in performing individual marketing functions and in using particular inputs.

PROCEDURES

Data in this report relate to the monthly market basket series, which reports "price spreads," the difference between the farm value and the retail price reported by the Bureau of Labor Statistics (BLS) for selected farm foods, including eggs, turkeys, and broilers. (Price spreads for the poultry items are illustrated in the chart on the cover of this report.) The market basket series, maintained by the Economic Research Service (ERS), was reported in the Marketing and Transportation Situation, until mid-1975, and is now carried in the ERS Agricultural Outlook report. The price spreads in the series represent movement of eggs and poultry through marketing channels culminating in retail sales to consumers, and do not include movements through institutional and away-from-home eating outlets, or movement into further-processed products. Estimated divisions of total farm-to-retail price spreads, (table 1 and appendix tables 1-3), and costs by function and input (appendix tables 4-6), used for this report, were made on the basis of various Federal, State, and industry studies made since the early fifties. These allocations are obviously approximations, and are not the results of full or frequent cost surveys. Survey data being collected under cooperative agreements between ERS and the Georgia, Missouri, and Pennsylvania Agricultural Experiment Stations were particularly helpful on assembling and processing costs in recent years.

Functions shown in this analysis are: assembling, processing, long-distance transporting, wholesaling, and retailing. These approximate the divisions being used for all commodities in cost- and profit-component work being carried out by ERS. Such divisions represent arbitrary separations of functions performed in poultry and egg marketing systems. In many instances more than one function may be performed by a firm. But changes in the marketing system from both the technological and many organizational dimensions are reflected in these price spreads and costs.

The value of inputs used was estimated for five categories: wages, salaries, and fringe benefits; containers and materials; energy; overhead; and other. Net returns (appendix tables 10-11) were determined both from previous studies and as residuals from the price spread and cost series. Grouping cost inputs into five categories was necessary because of the limitations of previous studies. Per unit costs for functions and cost inputs were divided by the cost-index series (table 2) to derive the productivity-index series (table 3 and appendix tables 7-9).

For several reasons, the analyses of the distribution of costs and of function and factor productivity have been largely confined to averages for periods of several years. Year-to-year total spreads and those for particular functions are obviously affected greatly by price changes, and precise data on annual rates of net returns are sketchy. General cost indexes used are only approximations for actual factor costs prevailing in poultry and egg marketing, and thus might show some deviations in the magnitude and timing of cost changes. Moreover, since the method of determining productivity is statistical, long-term trend results may be more relevant than annual data.

Table 1 --Average price spreads for Grade A large eggs, broilers, and turkeys, by function and as a proportion of total farm-to-retail spread, selected periods, 1955-74

Commodity and unit	Period	Assembly	Processing	Long-distance transp.	Whole-saling	Retail-ing	Total
				Cents per unit			
Eggs, doz.	1955-59	1.040	7.480	1.360	2.400	7.840	20.120
	1960-64	.860	7.080	1.260	2.440	9.160	20.800
	1965-69	.700	6.300	1.240	2.580	9.480	20.300
	1970-73	.825	7.450	1.250	2.775	10.625	22.925
	1974 1/	1.200	8.900	1.500	3.200	10.300	25.100
Broilers, lb. ready-to-cook whole	1955-59	1.100	5.220	1.000	2.520	9.420	19.260
	1960-64	.860	4.360	1.000	2.560	9.020	17.800
	1965-69	.920	4.740	1.000	2.720	10.140	19.520
	1970-73	1.050	6.000	1.050	2.850	11.400	22.350
	1974 1/	1.400	7.200	1.400	3.300	11.200	24.500
Turkeys, lb. ready-to-cook	1955-59	.740	6.260	1.380	2.380	8.120	18.880
	1960-64	.660	6.000	1.220	2.680	7.540	18.100
	1965-69	.720	6.140	1.240	2.920	8.040	19.060
	1970-73	.725	9.175	1.100	3.050	10.325	24.375
	1974 1/	1.000	13.200	1.400	3.500	14.800	33.900
				Percent of total price spread			
Eggs	1955-59	5.2	37.2	6.8	11.9	39.0	100.0
	1960-64	4.1	34.0	6.1	11.7	44.1	100.0
	1965-69	3.4	31.0	6.1	12.7	46.8	100.0
	1970-73	3.6	32.5	5.5	12.1	46.3	100.0
	1974 1/	4.8	35.5	6.0	12.7	41.0	100.0
Broilers	1955-59	5.7	27.1	5.2	13.1	48.9	100.0
	1960-64	4.8	24.5	5.6	14.4	50.7	100.0
	1965-69	4.7	24.3	5.1	13.9	52.0	100.0
	1970-73	4.7	26.8	4.7	12.8	51.0	100.0
	1974 1/	5.7	29.4	5.7	13.5	45.7	100.0
Turkeys	1955-59	3.9	33.2	7.3	12.6	43.0	100.0
	1960-64	3.7	33.2	6.7	14.8	41.6	100.0
	1965-69	3.8	32.2	6.5	15.3	42.2	100.0
	1970-73	3.0	37.6	4.5	12.5	42.4	100.0
	1974 1/	3.0	38.9	4.1	10.3	43.7	100.0

1/ Preliminary.

Table 2 --Changes in cost factors used in poultry and egg marketing, selected periods, 1955-74 1/

Cost factor	1955-59	1960-64	1965-69	1970-73	1974 2/
			(1967=100)		
Wages, salaries, fringe benefits 3/					
Assembly, processing	70	85	101	132	159
Long-distance transportation, wholesaling	69	81	100	135	159
Retailing	68	82	102	134	163
Containers and materials 4/	91	96	100	115	153
Energy 5/	93	99	99	123	206
Overhead 6/	72	84	96	125	145
Other 7/					
Eggs	95	98	104	122	160
Broilers	97	95	102	121	156
Turkeys	99	98	103	126	156

1/ Unless otherwise noted, index series are those regularly carried in the Marketing and Transportation Situation and since mid-1975, the Agricultural Outlook.

2/ Preliminary.

3/ Includes operating labor, management, administrative. For assembly and processing, based on hourly earnings in food manufacturing use. For long-distance transportation, hourly earnings in food wholesaling, and for retailing, hourly earnings in retail food stores.

4/ Packages, wrapping, office supplies. Index of containers and packaging materials.

5/ Light, heat, power. Index of fuel, power and light.

6/ Plant and equipment depreciation, interest on investment, rent, insurance, repairs, maintenance. Indexes of investment in new plant and equipment and long-term bond yield combined and lagged 3 years, then combined with index of services.

7/ Interest on operating capital, advertising, promotion, loss in handling, miscellaneous. Combination of indexes of long-term bond yield, total goods, and commodity price at farm level.

Some details are obscured by the use of average values for periods of years. In 1961 and 1967, for example, turkey production was much larger than in prior and following years. Due to processing plant capacity limitations during seasonal peak periods and to other time constraints, costs and spreads in those years widened appreciably, with some declinesin productivity. The use of the 1970-73 averages for these commodities does obscure many of the economic changes tracing particularly to the years 1972 and 1973. Thus, comparisons of 1970-73 averages with preliminary estimates for 1974 may often appear more startling than would annual trend comparisons.

CHANGES IN COSTS, EFFICIENCY, AND RETURNS

The study of changing costs, productivity, and earnings is complicated by many factors. Each marketing function is affected differently by the timing of the introduction and rate of adoption of technological changes, substitutions between various inputs, factor prices, structural changes, and shifts in marketing practices. Many previous studies have examined individual functions at a particular place or point in time or analyzed productivity by using one or a few inputs. Many such studies have been used to help synthesize a continuous and consistent set of measurements for this report.

Assembly

Assembly costs per unit of output declined after the midfifties, because of declining average hauling distances between farms and processing plants, increased volumes per load, and increased density of production around processing plants. Gains in efficiency more than offset rising factor prices associated with the assembly of broilers and turkeys until the midsixties, and those associated with assembly of eggs until the late sixties, after which time factor prices and assembly costs per unit of output increased more rapidly than gains in efficiency.

Total productivity in assembling eggs, broilers, and turkeys was substantially higher in 1965-69 than a decade earlier. Current productivity levels are above those of 1965-69. Since 1965-69, larger relative increases for turkeys and broilers than for eggs have reflected greater mechanization of loading operations with acompanying increases in labor productivity. Some further gains have occurred since 1965-69 for all three products because of larger producing units and increased density of supply areas. There were productivity gains from energy used in assembly, related to vehicle size and density of supply areas.

Wages, salaries, and fringe benefits have accounted for one-half to two-thirds of total assembly costs. Energy has accounted for 30 to 40 percent, and overhead costs for 4 to 10 percent.

Processing

Costs per unit of output for packing eggs and slaughtering and eviscerating broilers and turkeys trended downward from the midfifties to the midsixties. Increased mechanization, realization of economies of scale by larger plants, and higher utilization of capacity produced efficiencies were

Table 3--Productivity in poultry and egg marketing, by function and cost category, selected periods, 1955-74

Commodity	Function	1955-59	1960-64	1965-69	1970-73	1974 1/
				(1965-69=100)		
Eggs	Assembly	52	81	100	109	101
	Processing	67	80	100	104	112
	Long-distance transportation	71	87	100	129	140
	Wholesaling	84	91	100	123	133
	Retailing	90	89	100	120	146
	Total	78	85	100	114	129
Broilers	Assembly	63	94	100	114	112
	Processing	68	96	100	101	106
	Long-distance transportation	79	89	100	123	119
	Wholesaling	85	93	100	125	139
	Retailing	81	97	100	117	141
	Total	77	96	100	114	127
Turkeys	Assembly	78	98	100	127	126
	Processing	76	93	100	83	75
	Long-distance transportation	71	91	100	147	150
	Wholesaling	97	96	100	124	135
	Retailing	76	93	100	106	101
	Total	79	93	100	102	97
Eggs	Wages, salaries, fringe benefits	69	84	100	105	113
	Container & materials	88	91	100	106	118
	Energy	81	92	100	122	132
	Overhead	75	79	100	143	168
	Other	111	92	100	112	150
Broilers	Wages, salaries, fringe benefits	71	95	100	100	107
	Container & materials	81	88	100	124	137
	Energy	85	98	100	122	128
	Overhead	76	95	100	138	163
	Other	107	104	100	120	160
Turkeys	Wages, salaries, fringe benefits	69	91	100	94	83
	Container & materials	86	94	100	94	88
	Energy	106	106	100	111	109
	Overhead	76	90	100	114	116
	Other	91	98	100	100	110

1/ Preliminary.

more than sufficient to offset rising factor prices. While further gains in efficiency have occurred since the midsixties, they have not been sufficient to offset rising factor prices. Thus, costs per unit have risen. A major share of the rise in turkey processing costs since 1969 has been attributed to the processing of more fresh-killed birds and more self-basting packs.

Substantial increases in total productivity for all three commodities occurred after the midfifties. For example, egg packing shifted from a predominantly hand operation to one of mechanically grading, candling, and cartoning. Broiler and turkey processing lines with varied new forms of equipment also curtailed labor needs. The changing product mix on turkeys has led to some recent declines in total productivity in turkey processing. Productivity is assumed to have continued to rise for standard, unbranded, ready-to-cook whole birds. Productivity for egg processing has increased more than for broiler processing since 1965-69. But, labor productivity in broiler processing actually declined in the early seventies, when many plants experienced elevated turnover and labor supply problems.

Gains in labor productivity in handling standard products in processing plants have been substantial over the last 15 years. But, overhead productivity has not shown this pattern because of the extensive substitution of equipment for labor. The shift of most packaging functions back toward the processing plant level has nullified productivity gains associated with the use of containers and materials in processing plants, but has raised productivity for the total marketing system. Energy productivity declined from the midfifties to the mid- and late sixties because of the higher energy use for more mechanized equipment. More recently, energy productivity has increased due to economies of scale and new equipment.

In egg packing, containers and materials have been the largest item of expense, rising from under 40 percent in earlier years to above 44 percent recently. During the same period, wages, salaries, and fringe benefits as a proportion of total costs have declined from about 40 percent to about 27 percent. The share of energy costs has risen from under 3 percent to over 5 percent. Overhead costs have increased from under 8 percent to about 13 percent, while other costs have fluctuated at 10 percent and above.

Labor, still the major component of increased broiler processing costs, has declined from over 60 percent to under 50 percent of total costs since 1955. Increases in shares from 5 to 9 percent, 10 to 17 percent, and 7 to 12 percent, respectively, have occurred for energy, overhead, and other costs. Containers and materials have declined to less than 15 percent. Over the same timespan, labor costs in turkey processing have declined from over 45 percent to under 40 percent of total costs, and container and material costs from under 28 percent to almost 23 percent. The proportion of costs accounted for by energy have risen from 12 percent to 16 percent and overhead from 11 percent to about 15 percent.

Long-distance Transportation

Long-distance transportation costs have been affected by a variety of forces and there is no uniform pattern of change for the three commodities.

Costs on eggs declined until after the midsixties; costs on broilers remained steady into the seventies; and costs on turkeys have shown an erratic pattern. Costs for all three commodities have been variously affected by their exempt commodity status, by the shifts in regional production patterns, the displacement of rail by truck movement, and adjustments where back hauls were possible. Only recently have rising factor prices produced a clear upward effect on costs. In this study, long-distance transportation costs reflect movements within, as well as between regions. Thus, with most regions using a high percentage of local output, cost figures have been far below typical long-haul rates from distant producing areas to many large consuming centers.

Total productivity in long-distance transportation has shown an upward trend since the midfifties due to larger vehicles, reduced travel distances and travel time, and heavier gross and net loads. Upward trends in productivity have, on balance, been characteristic for all cost categories.

Overhead costs have accounted for half or more of total costs, and energy and labor costs for most of the remainder. The pattern of change relative to the proportions which individual cost categories are of total costs per unit has been somewhat variable by commodities, but cost breakdown data is less specific on long-distance transportation than for most other marketing functions. The share of energy costs, which has accounted for a quarter to a third of total costs, fell from the midfifties to the late sixties, but has risen since that time.

Wholesaling

Average costs per unit in wholesaling have shown a consistent upward trend for eggs, broilers, and turkeys since the midfifties. Until recently, when factor prices rose sharply, the rate of increase in costs per unit was relatively small and lower than the rate of increase in factor prices. This situation was largely due to relative changes in the kind of wholesaling operations being performed. As marketing channels have become more direct, a higher proportion of volume has gone directly to retail warehouses and stores from processors. Conversely, the proportion going through traditional wholesalers has declined. These shifts were more than sufficient to offset factor cost increases and the effects of urban congestion.

Total productivity in wholesaling has risen since the midfifties. The rates of increase have been much more modest for the labor, salaries, and fringe benefit category than for other categories. Productivity in using containers and materials has risen substantially because of the shift in the packaging function back toward processing plants. Rates of increase in productivity on energy, overhead, and other costs have largely reflected the changes in the nature of the wholesaling function.

Since the midfifties, the proportion of total costs per unit accounted for by labor, salaries, and fringe benefits has increased from 45 percent to over 65 percent. There have been declines of 3 to 5 percentage points on containers, 5 to 7.5 percentage points on energy, 5 to 6 percentage points on overhead, and 3.5 to 6.5 percentage points on other costs over the same period.

Retailing

Costs per unit in retailing eggs, broilers, and turkeys have trended upward since the midfifties, but more slowly than changes in factor prices. For other functions in the marketing system there has been a close relationship between directional changes in price spreads and costs. At retail, the relationship is not as close, probably due to the year-to-year effects of variable price merchandising (including the degree and depth of price specializing).

Since the midfifties total productivity in retailing standard products appears to have increased, generally at rates similar to the increases for the wholesaling function. Data series shown on turkeys for retailing, as on processing, have reflected a substantial change in product mix since the late sixties, and somewhat different productivity levels than would a more standard product. The growing importance of large retail outlets has increased productivity from overhead since the midfifties, and from energy since the 1965-69 period. Increased productivity in using containers and materials has resulted from the shift of packaging back to the processing plant level. Productivity from labor, salaries, and fringe benefits in retailing has shown only modest improvement over the last 15 years. Other cost categories have varied.

Wages and overhead costs are by far the most important categories at retail. The relative importance of labor, salaries, and fringe benefit costs, as a share of total costs per unit, has trended upward since the midfifties. Overhead costs, and less steadily, container and material costs, have trended downward, and energy costs have remained steady or increased as a share of total costs. The share for other costs has been variable to lower. Retail cost component data are based on fragmentary observations and are thus not represented as being as accurate as those for other cost functions.

Total Systems

Total price spreads and costs per unit of products in egg and poultry marketing systems remained remarkably stable from the midfifties through the sixties. But in the seventies, both average costs and spreads widened under the impact of higher factor prices. The proportions of total price spreads accounted for by various functions have changed irregularly during this period because of the timing of technological changes and shifts in the nature of the individual functions.

Overall productivity in egg and poultry marketing systems is now considerably higher than in the midfifties and somewhat higher than in the early seventies. In general, labor now accounts for a larger share of total costs per unit than in the midfifties and overhead for a smaller share. The share of container and material costs is generally slightly lower. The share for energy tended to decline, but has recently increased.

Net Returns

Ideally, with more adequate input data and the inclusion of all cost categories, net returns per unit of product would be the same as net profit

per unit of product. It is not certain that the costs synthesized in this study include all cost categories. For example, central overhead charges in integrated, multiple-unit, multiple-function, and conglomerate-owned firms may not be fully reflected. Moreover, continuing data series on actual firm profits, by functions, are not available. Hence, net returns were often derived by subtracting accumulated costs from price spreads. These numbers can, however, be used as the basis for drawing some tentative conclusions about relative industry earning rates. This discussion of relative changes in net returns evaluates egg and poultry marketing in an opportunity cost sense. Long-term bond yield is used as an indicator of a stable and low-risk investment.

The upward trend in long-term bond yields since the midfifties was not matched over the entire time period by corresponding rates of increase in net returns per unit of product in egg and poultry marketing. The notable exceptions of sharply higher rates of net returns in egg and poultry marketing seem to have been related to periods of peak commodity prices.

The opportunities for achieving consistent levels of net returns over time may be better for service or distributive functions than for assembling or processing standard egg and poultry items. The derived net returns figures in this study tend to support this hypothesis. Nevertheless, year-to-year variations in net returns do occur because of market conditions and pricing policies, and averages for longer periods are more stable indicators.

In consideration of the relative risks involved, long-term bond yields should average lower than egg and poultry marketing systems returns. Derived net returns in this study tend to confirm this hypothesis. But over time, the ratios of net returns from egg and poultry marketing to long-term bond yields have tended to decline. Industry averages always hide the dispersion around them and the financial status of declining or rising firms. Thus, the drop in average rates of net returns might reflect this situation, some relative declines in risk, or some general worsening of relative earning capacity in egg and poultry marketing.

Firms in the egg and poultry marketing system, as elsewhere in the economy, use a wide variety of tests and ratios to assess their progress and financial position (see references, 9 and 42). Net returns per unit of product sold is only one such measurement, and somewhat different conclusions can emerge when total dollar returns or the relation to investment or equity are studied. One way of looking at net returns per unit of product is to consider the frequency (and total volume of marketing). In this sense, eggs, which are virtually a continuous flow product, show a lower rate of net returns for the marketing system than broilers or turkeys. Both of these have batch characteristics, at least at production stages. Batch spacing is wider for turkeys than for broilers, and marketings are much more highly seasonal than for either broilers or eggs.

Appendix table 1 --Price spreads for Grade A large eggs, 1955-74 1/

Year	Assembly	Processing	Long-distance transportation 2/	Whole-saling 3/	Retailing	Total
	Cents per dozen					
1955	1.1	7.5	1.5	2.3	7.1	19.5
1956	1.1	7.5	1.4	2.3	7.3	19.6
1957	1.0	7.5	1.3	2.4	7.5	19.7
1958	1.0	7.5	1.3	2.5	8.3	20.6
1959	1.0	7.4	1.3	2.5	9.0	21.2
1960	0.9	7.3	1.3	2.5	7.8	19.8
1961	0.9	7.2	1.3	2.4	9.1	20.9
1962	0.9	7.1	1.3	2.4	9.6	21.3
1963	0.8	7.0	1.2	2.4	9.7	21.1
1964	0.8	6.8	1.2	2.5	9.6	20.9
1965	0.7	6.4	1.2	2.5	9.3	20.1
1966	0.7	6.1	1.2	2.5	9.6	20.1
1967	0.7	6.2	1.2	2.6	9.5	20.2
1968	0.7	6.3	1.3	2.6	9.5	20.4
1969	0.7	6.5	1.3	2.7	9.5	20.7
1970	0.8	6.9	1.3	2.7	11.2	22.9
1971	0.8	7.2	1.3	2.8	10.5	22.6
1972	0.8	7.6	1.2	2.8	10.0	22.5
1973	0.9	8.1	1.2	2.8	10.7	23.7
1974 4/	1.2	8.9	1.5	3.2	10.3	25.1

1/ Equivalent to market basket series totals.
2/ Weighted average of intraregional and interregional movements.
3/ Weighted average of movements to wholesale distributors, retail warehouses, and retail stores.
4/ Preliminary.

Appendix table 2 --Price spreads for boilers, ready-to-cook, whole equivalent, 1955-74 1/

Year	Assembly	Processing	Long-distance transportation 2/	Whole-saling 3/	Retailing	Total
	Cents per pound 4/					
1955	1.2	5.6	1.0	2.5	8.6	18.9
1956	1.2	5.4	1.0	2.5	9.7	19.8
1957	1.1	5.2	1.0	2.5	9.8	19.6
1958	1.0	5.0	1.0	2.5	9.9	19.4
1959	1.0	4.9	1.0	2.6	9.1	18.6
1960	0.9	4.7	1.0	2.6	8.6	17.8
1961	0.9	4.5	1.0	2.5	8.6	17.5
1962	0.9	4.3	1.0	2.5	9.2	17.9
1963	0.8	4.2	1.0	2.6	9.5	18.1
1964	0.8	4.1	1.0	2.6	9.2	17.7
1965	0.9	4.3	1.0	2.7	9.1	18.0
1966	0.9	4.5	1.0	2.7	10.4	19.5
1967	0.9	4.6	1.0	2.7	10.3	19.5
1968	0.9	5.0	1.0	2.7	10.2	19.8
1969	1.0	5.3	1.0	2.8	10.7	20.8
1970	1.0	5.4	1.0	2.8	11.9	22.1
1971	1.0	5.7	1.0	2.8	11.2	21.7
1972	1.0	6.2	1.1	2.9	10.1	21.3
1973	1.2	6.7	1.1	2.9	12.4	24.3
1974 5/	1.4	7.2	1.4	3.3	11.2	24.5

1/ Equivalent to market basket series totals.
2/ Weighted average of intraregional and interregional movements.
3/ Weighted average of movements to wholesale distributors, retail warehouses, and retail stores.
4/ Fresh ice packed and similar forms.
5/ Preliminary.

Appendix table 3--Price spreads for turkeys ready-to-cook, whole equivalent, 1955-74 1/

Year	Assembly	Processing	Long distance transportation 2/	Wholesaling 3/	Retailing 4/	Total
			Cents per pound 5/			
1955	0.8	6.5	1.5	2.3	9.5	20.6
1956	0.8	6.4	1.4	2.3	9.5	20.4
1957	0.7	6.2	1.4	2.4	6.7	17.4
1958	0.7	6.3	1.3	2.4	9.9	20.6
1959	0.7	5.9	1.3	2.5	5.0	15.4
1960	0.6	5.8	1.2	2.5	7.3	17.4
1961	0.9	7.3	1.5	3.2	7.6	20.5
1962	0.6	5.8	1.2	2.5	7.3	17.4
1963	0.6	5.7	1.1	2.6	7.6	17.6
1964	0.6	5.4	1.1	2.6	7.9	17.6
1965	0.6	5.2	1.1	2.6	7.8	17.3
1966	0.7	5.9	1.3	3.0	7.6	18.5
1967	0.9	7.0	1.5	3.2	8.3	20.9
1968	0.7	6.2	1.2	2.9	8.2	19.2
1969	0.7	6.4	1.1	2.9	8.3	19.4
1970 6/	0.7	8.5	1.1	3.0	9.6	22.9
1971 6/	0.7	8.7	1.1	3.0	10.3	23.8
1972 6/	0.7	8.8	1.1	3.1	10.2	23.9
1973 6/	0.8	10.7	1.1	3.1	11.2	26.9
1974 6/ 7/	1.0	13.2	1.4	3.5	14.8	33.9

1/ Equivalent to market basket series totals, 1964-74. Earlier years estimated from continuing series for selected cities.
2/ Weighted average of intraregional and interregional movements.
3/ Weighted average of movements to wholesale distributors, retail warehouses, and retail stores.
4/ Adjusted to reflect holiday price specials at retail.
5/ Mostly frozen.
6/ Reflects probable changes in product form. Adjusted at processing and retail levels for the wider spreads suggested by Bureau of Labor Statistics retail prices.
7/ Preliminary.

Appendix Table 4 --Proportions of Grade A large egg marketing costs, by function and cost items, selected periods, 1955-74

Function	Cost Item	1955-59	1960-64	1965-69	1970-73	1974 1/
				Percent		
Assembly	Wages, salaries, fringe benefits	55.5	57.2	60.3	60.2	58.5
	Energy	37.6	35.7	30.9	29.5	31.2
	Overhead	6.9	7.1	8.8	10.3	10.3
	Total	100.0	100.0	100.0	100.0	100.0
Processing	Wages, salaries, fringe benefits	39.8	34.1	26.8	28.2	27.4
	Containers,materials	39.7	42.5	46.4	43.7	44.0
	Energy	2.8	3.5	4.1	4.3	5.4
	Overhead	7.6	9.4	12.4	13.8	12.5
	Other	10.1	10.5	10.3	10.0	10.7
	Total	100.0	100.0	100.0	100.0	100.0
Long-distance transportation	Wages, salaries fringe benefits	18.2	18.7	19.8	18.7	17.9
	Energy	26.6	25.0	23.4	25.2	31.4
	Overhead	53.2	54.3	55.0	54.1	48.8
	Other	2.0	2.0	1.8	2.0	1.9
	Total	100.0	100.0	100.0	100.0	100.0
Wholesaling	Wages, salaries, fringe benefits	47.9	52.0	60.4	72.0	68.6
	Containers,materials	6.6	6.0	4.7	3.0	3.3
	Energy	22.2	19.2	16.3	11.4	14.9
	Overhead	13.3	13.4	9.6	6.9	6.6
	Other	10.0	9.4	9.0	6.7	6.6
	Total	100.0	100.0	100.0	100.0	100.0
Retailing	Wages, salaries, fringe benefits	41.2	39.1	45.9	55.5	58.9
	Containers,materials	2.8	2.3	2.0	1.8	2.0
	Energy	3.5	3.2	3.5	3.5	5.3
	Overhead	37.6	36.7	30.1	21.6	19.0
	Other	14.9	18.7	18.5	18.0	14.8
	Total	100.0	100.0	100.0	100.0	100.0
Total	Wages, salaries, fringe benefits	40.6	38.4	40.6	46.3	46.1
	Containers,materials	17.0	16.6	16.2	15.9	17.0
	Energy	8.9	8.0	7.6	7.0	9.7
	Overhead	22.7	24.2	22.7	18.5	16.4
	Other	10.8	12.8	12.9	12.3	10.8
	Total	100.0	100.0	100.0	100.0	100.0

1/ Preliminary.

Appendix Table 5 --Proportions of broiler marketing costs, by functions and cost items, selected periods, 1955-74

Function	Cost Item	1955-59	1960-64	1965-69	1970-73	1974 1/
		Percent				
Assembly	Wages, salaries, fringe benefits	64.4	67.7	70.3	72.2	66.5
	Energy	31.8	27.9	25.2	23.1	29.1
	Overhead	3.8	4.4	4.5	4.8	4.4
	Total	100.0	100.0	100.0	100.0	100.0
Processing	Wages, salaries, fringe benefits	62.4	49.1	48.0	51.1	47.4
	Containers,materials	15.0	18.7	16.4	13.2	14.1
	Energy	5.3	7.2	6.8	6.3	8.9
	Overhead	10.0	14.4	16.6	17.6	17.0
	Other	7.3	10.6	12.2	11.7	12.6
	Total	100.0	100.0	100.0	100.0	100.0
Long-distance transportation	Wages, salaries, fringe benefits	18.0	18.1	16.1	15.9	14.5
	Energy	29.1	27.4	24.9	26.8	31.2
	Overhead	49.6	51.3	55.9	54.1	51.8
	Other	3.3	3.2	3.1	3.2	2.5
	Total	100.0	100.0	100.0	100.0	100.0
Wholesaling	Wages, salaries, fringe benefits	44.9	49.1	54.5	67.1	67.0
	Containers,materials	8.5	8.3	7.0	4.1	4.6
	Energy	18.2	16.1	13.6	10.1	10.5
	Overhead	13.6	12.4	11.7	7.5	7.5
	Other	14.8	14.1	13.2	11.2	10.4
	Total	100.0	100.0	100.0	100.0	100.0
Retailing	Wages, salaries, fringe benefits	38.4	42.1	46.0	56.6	62.0
	Containers,materials	6.9	6.2	4.8	4.0	4.2
	Energy	3.0	3.4	3.3	3.2	4.8
	Overhead	37.6	33.9	32.1	24.8	20.3
	Other	14.8	14.1	13.2	11.2	10.4
	Total	100.0	100.0	100.0	100.0	100.0
Total	Wages, salaries, fringe benefits	46.5	44.9	47.3	55.2	55.6
	Containers,materials	8.6	9.0	7.5	6.2	6.7
	Energy	8.8	8.8	7.9	7.1	10.1
	Overhead	25.3	25.3	25.2	21.0	18.5
	Other	10.8	12.0	12.1	10.5	9.1
	Total	100.0	100.0	100.0	100.0	100.0

1/ Preliminary.

Appendix Table 6 --Proportions of turkey marketing costs, by functions and cost items, selected periods, 1955-74

Function	Cost Item	1955-59	1960-64	1965-69	1970-73	1974 1/
		Percent				
Assembly	Wages, salaries, fringe benefits	53.4	54.8	59.7	61.2	54.6
	Energy	43.4	41.2	36.4	34.3	41.4
	Overhead	3.2	4.0	3.9	4.5	4.0
	Total	100.0	100.0	100.0	100.0	100.0
Processing	Wages, salaries, fringe benefits	46.1	38.4	34.4	38.0	39.8
	Containers, materials	26.8	28.0	27.9	22.9	22.8
	Energy	11.9	14.7	15.7	12.4	16.2
	Overhead	11.0	14.3	16.6	18.6	14.7
	Other	4.2	4.6	5.4	8.1	6.5
	Total	100.0	100.0	100.0	100.0	100.0
Long-distance transportation	Wages, salaries, fringe benefits	21.4	18.6	16.9	14.3	14.3
	Energy	26.8	25.9	23.3	27.7	32.8
	Overhead	48.8	52.3	56.8	55.1	50.6
	Other	3.0	3.2	3.0	2.9	2.3
	Total	100.0	100.0	100.0	100.0	100.0
Wholesaling	Wages, salaries, fringe benefits	44.8	47.8	52.5	64.2	65.9
	Containers, materials	9.1	8.2	6.7	4.2	4.6
	Energy	20.4	19.2	16.7	14.0	15.3
	Overhead	12.0	12.5	13.0	8.8	7.1
	Other	13.7	12.3	11.1	8.8	7.1
	Total	100.0	100.0	100.0	100.0	100.0
Retailing	Wages, salaries, fringe benefits	30.4	31.6	36.8	42.0	42.9
	Containers, materials	4.5	3.8	2.8	3.8	4.4
	Energy	6.5	8.1	9.3	9.8	13.3
	Overhead	42.5	41.4	37.0	32.5	28.8
	Other	16.1	15.1	14.1	11.9	10.6
	Total	100.0	100.0	100.0	100.0	100.0
Total	Wages, salaries, fringe benefits	37.9	36.3	38.0	42.6	43.2
	Containers, materials	12.2	12.3	11.4	11.1	11.8
	Energy	13.2	14.5	14.6	13.0	16.6
	Overhead	26.6	27.2	26.5	24.1	20.6
	Other	10.1	9.7	9.5	9.2	7.8
	Total	100.0	100.0	100.0	100.0	100.0

1/ Preliminary.

Appendix Table 7 --Measurements of productivity in marketing Grade A large eggs, by cost items and functions, selected periods, 1955-74

Cost Item	Function	1955-59	1960-64	1965-69	1970-73	1974 1/
				(1965-69=100)		
Wages, salaries, fringe benefits	Assembly	51	72	100	111	103
	Processing	39	58	100	106	111
	Long-distance transportation	68	83	100	143	147
	Wholesaling	94	99	100	106	114
	Retailing	91	98	100	102	114
	Total	69	84	100	105	113
Containers, materials	Processing	89	92	100	104	116
	Wholesaling	70	79	100	164	177
	Retailing	77	82	100	115	137
	Total	88	91	100	106	118
Energy	Assembly	52	70	100	111	101
	Processing	118	105	100	102	116
	Long-distance transportation	75	91	100	115	130
	Wholesaling	75	89	100	166	185
	Retailing	113	110	100	116	125
	Total	81	92	100	122	132
Overhead	Assembly	65	89	100	95	91
	Processing	103	101	100	100	108
	Long-distance transportation	71	87	100	132	142
	Wholesaling	59	67	100	172	179
	Retailing	74	75	100	170	220
	Total	75	79	100	143	168
Other	Processing	78	82	100	103	106
	Long-distance transportation	78	88	100	105	124
	Wholesaling	89	95	100	148	170
	Retailing	139	97	100	112	176
	Total	111	92	100	112	150
Total	Assembly	52	81	100	109	101
	Processing	67	80	100	104	112
	Long-distance transportation	71	87	100	129	140
	Wholesaling	84	91	100	123	133
	Retailing	90	89	100	120	146
	Total	78	85	100	114	129

1/ Preliminary.

Appendix Table 8 --Measurements of productivity in broiler marketing, by cost items and functions, selected periods, 1955-74

Cost Item	Function	1955-59	1960-64	1965-69	1970-73	1974 1/
				(1965-69=100)		
Wages, salaries, fringe benefits	Assembly	63	93	100	112	111
	Processing	48	89	100	98	107
	Long-distance transportation	62	72	100	130	126
	Wholesaling	91	95	100	105	113
	Retailing	87	99	100	97	105
	Total	71	95	100	100	107
Containers, materials	Processing	90	91	100	113	119
	Wholesaling	82	87	100	188	212
	Retailing	69	84	100	126	153
	Total	81	88	100	124	137
Energy	Assembly	62	96	100	120	120
	Processing	111	104	100	107	108
	Long-distance transportation	80	91	100	110	119
	Wholesaling	77	90	100	161	182
	Retailing	113	110	100	117	125
	Total	85	98	100	122	128
Overhead	Assembly	75	95	100	111	102
	Processing	113	109	100	98	98
	Long-distance transportation	84	95	100	128	116
	Wholesaling	70	87	100	195	226
	Retailing	70	93	100	153	210
	Total	76	95	100	138	163
Other	Processing	143	114	100	98	99
	Long-distance transportation	88	88	100	112	132
	Wholesaling	92	93	100	134	173
	Retailing	102	104	100	130	214
	Total	107	104	100	120	160
Total	Assembly	63	94	100	114	112
	Processing	68	96	100	101	106
	Long-distance transportation	79	89	100	123	119
	Wholesaling	85	93	100	125	139
	Retailing	81	97	100	117	141
	Total	77	96	100	114	127

1/ Preliminary

Appendix Table 9 --Measurements of productivity in turkey marketing, by cost items and functions, selected periods, 1955-74

Cost Item	Function	1955-59	1960-64	1965-69	1970-73	1974 1/
		(1965-69=100)				
Wages, salaries, fringe benefits	Assembly	75	100	100	126	124
	Processing	50	78	100	79	64
	Long-distance transportation	49	75	100	133	168
	Wholesaling	100	98	100	104	104
	Retailing	81	100	100	94	86
	Total	69	91	100	94	83
Containers, materials	Processing	92	98	100	93	87
	Wholesaling	82	96	100	173	184
	Retailing	57	77	100	71	61
	Total	86	94	100	94	88
Energy	Assembly	81	97	100	131	132
	Processing	121	110	100	105	94
	Long-distance transportation	73	92	100	118	132
	Wholesaling	95	96	100	140	187
	Retailing	135	122	100	97	92
	Total	106	106	100	111	109
Overhead	Assembly	87	93	100	112	108
	Processing	110	104	100	77	79
	Long-distance transportation	79	97	100	152	152
	Wholesaling	100	100	100	182	228
	Retailing	65	83	100	122	121
	Total	76	90	100	114	116
Other	Processing	119	114	100	54	59
	Long-distance transportation	92	95	100	150	189
	Wholesaling	95	94	100	145	193
	Retailing	84	95	100	119	126
	Total	91	98	100	100	110
Total	Assembly	78	98	100	127	126
	Processing	76	93	100	83	75
	Long-distance transportation	71	91	100	147	150
	Wholesaling	97	96	100	124	135
	Retailing	76	93	100	106	101
	Total	79	93	100	102	97

1/ Preliminary.

Appendix Table 10 --Relative changes in net returns in egg and poultry marketing, by functions, vs. long-term bond yields, selected periods, 1955-74

Commodity	Period	Marketing Functions			Long-term bond yield
		Preparatory 1/	Distributive 2/	Total	
		(1965-69=100)			
Eggs	1955-59	97	107	98	65
	1960-64	75	98	90	77
	1965-69	100	100	100	100
	1970-73	118	135	130	133
	1974 3/	136	91	100	152
Broilers	1955-59	91	110	103	65
	1960-64	89	104	100	77
	1965-69	100	100	100	100
	1970-73	117	119	117	133
	1974 3/	130	80	88	152
Turkeys	1955-59	91	109	103	65
	1960-64	103	102	102	77
	1965-69	100	100	100	100
	1970-73	97	131	119	133
	1974 3/	107	187	158	152

1/ Assembly, processing, long-distance transportation.
2/ Wholesaling and retailing.
3/ Preliminary.

Appendix Table 11 --Relative net returns in Poultry and egg marketing compared with long-term bond yields, selected periods, 1955-74

Period	Long-term bond yields	Net returns in:		
		Egg marketing	Broiler marketing	Turkey marketing
	Percent	Percent of total price spread		
1955-59	3.70	6.28	7.69	9.06
1960-64	4.35	5.75	7.46	9.00
1965-69	5.67	6.42	7.44	8.83
1970-73	7.52	8.34	8.71	10.47
1974 1/	8.60	6.45	6.56	13.99

1/ Preliminary.

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